
ऑक्सीडेमेटन — मिथाइल टी. सी
— विशिष्टि
(पहला पुनरीक्षण)

Oxydemeton — Methyl
Technical Concentrates —
Specification
(First Revision)

ICS 65.100.10

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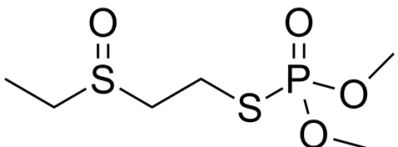
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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Pesticides Sectional Committee had been approved by the Food and Agriculture Divisional Council.

Oxydemeton-methyl is a systemic insecticide and acaricide used for controlling sucking pests such as aphids, jassids, spider mites and white flies

Oxydemeton-methyl is the accepted common name by the International Organization for Standardization for the insecticidal chemical S-[2-(ethyl-sulphinyl)-ethyl] O, O-dimethyl phosphorothioate. It is also known by the name Demeton-O-methyl sulphoxide. The empirical and structural formulae and the molecular mass of oxydemeton-methyl are as indicated below:

<i>Empirical Formula</i>	<i>Structural Formula</i>	<i>Molecular Mass</i>
$C_6H_{15}O_4PS_2$		246.3

This standard was first published in 1976. The standard has been brought out in the latest style and format of the Indian Standards, and references to Indian Standards wherever applicable have been updated. It also incorporates two amendments issued to this standard.

In the preparation of this standard due consideration has been given to the provisions of the *Insecticides Act*, 1968 and the Rules framed thereunder. However, this standard is subject to the restrictions imposed under these, wherever applicable.

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

OXYDEMETON — METHYL TECHNICAL CONCENTRATES — SPECIFICATION

(First Revision)

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for oxydemeton-methyl technical concentrates.

2 REFERENCES

The standards listed below contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards.

IS No.	Title
IS 1070 : 1992	Reagent grade water — Specification (<i>third revision</i>)

*IS No.**Title*

IS 6940 : 1982 : Methods of test for pesticides and their formulations (*first revision*)

IS 8190 : 1988 : Requirements for packing of (Part 2) : pesticides: Part 2 Liquid pesticides (*second revision*)

IS 10946 : 1996 : Methods of sampling for technical grade pesticides

3 REQUIREMENTS**3.1 Description**

Oxydemeton-methyl technical concentrates shall be in the form of an amber coloured liquid free from extraneous matter and added modifying agents except solvents.

3.2 The material shall also comply with the requirements specified in Table 1.

Table 1 Requirements for Oxydemeton-methyl Technical Concentrate
(Clause 3.2)

Sl No.	Characteristics	Requirement	Method of Test, Refer to
(1)	(2)	(3)	(4)
i)	Oxydemeton-methyl content, percent by mass	50.0	Annex A
ii)	Water content, percent by mass, <i>Max</i>	1.0	IS 6940
iii)	Acidity (as H ₂ SO ₄) percent by mass, <i>Max</i>	1.5	IS 6940
	or		
	Alkalinity (as NaOH), percent by mass, <i>Max</i>	0.05	IS 6940

4 PACKING

4.1 The material shall be packed as per the requirements given in IS 8190 (Part 2).

5 MARKING

5.1 The containers shall be securely closed and shall bear legibly and indelibly the following information in addition to any other information as

required under the *Insecticides Act*, 1968 and Rules framed thereunder:

- a) Name of the material;
- b) Name and address of the manufacturer;
- c) Batch number;
- d) Date of manufacture;
- e) Date of expiry;
- f) Net quantity;

- g) Nominal oxydemeton-methyl content, percent (*m/m*);
- h) Cautionary notice as worded in the *Insecticides Act*, 1968, and Rules framed thereunder; and
- j) Any other information required under the Legal Metrology (Packaged Commodities) Rules, 2011.

5.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

6 SAMPLING

Representative samples of the material shall be drawn as prescribed in IS 10946.

7 TESTS

7.1 Tests shall be carried out as prescribed in the appropriate methods referred to in col 4 and 5 of Table 1.

7.2 Quality of Reagents

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

ANNEX A

[Table 1, Sl No.(i)]

DETERMINATION OF OXYDEMETON-METHYL CONTENT

A-1 PRINCIPLE

A-1.1 Oxydemeton-methyl content is hydrolyzed by alkali. After hydrolysis known volume of hydrochloric acid is added and the excess hydrochloric acid is back titrated with standard alkali. Free acidity is found out by direct titration with standard alkali. The difference between total hydrolysis and acidity value is equivalent to oxydemeton-methyl.

A-2. APPARATUS

A-2.1 Conical Flask — 300 ml capacity, fitted with ground-glass cone joint and stopper

A-2.2 Magnetic Stirrer

A-3 REAGENTS

A-3.1 Standard Sodium Hydroxide Solution — 0.1 N

A-3.2 Hydrochloric Acid Solution — 0.1 N approximately

A-3.3 Bromocresol Green — 0.1 percent (m/v) solution in ethanol

A-4 PROCEDURE

A-4.1 Total Acidity by Hydrolysis

Weigh accurately the sample equivalent to about 0.40 g to 0.45 g of the active ingredient into 500 ml conical flask by difference method. To it add 50 ml 0.1 N sodium hydroxide solution. Stopper the flask and stir the contents using a magnetic stirrer for 30 minutes at room temperature. Wash the sides of the flask with water.

A-4.1.1 Titrate 50 ml of standard 0.1 N sodium hydroxide solution with 0.1 N hydrochloric acid solution using bromocresol green as indicator. Let the volume of hydrochloric acid solution required be V_0 ml.

A-4.1.2 Add V_0 ml of hydrochloric acid solution to the hydrolyzed solution. Mix the contents by swirling and wash the sides of the flask by 100 ml acetone. Back titrate the excess acid with 0.1 N standard sodium hydroxide solution using bromocresol green indicator. The end point is from yellow to bluish green to blue. There shall not be any greenish shade. pH of the final solution will be 5. Let the reading be V ml.

A-4.2 Determination of Free Acidity

Weigh accurately about 5.0 g of the sample into a 250 ml conical flask. To it add 10 ml water and 50 ml acetone. Titrate with 0.1 N sodium hydroxide solution using bromocresol green as indicator. Let this titer reading be V_1 ml.

A-5 CALCULATION

Oxydemeton-methyl content, percent by mass

$$= \frac{\left[\frac{V}{M} - \frac{V_1}{M_1}\right] \times N \times 246 \times 100}{1000}$$

$$= \left(\frac{V}{M} - \frac{V_1}{M_1}\right) \times N \times 24.6$$

where

M = mass, in g, of the sample taken for total acidity determination

M_1 = mass, in g, of the sample taken for free acidity determination, and

N = normality of the sodium hydroxide solution.

NOTE — Addition of acetone should not change the titer reading by more than 0.05 ml. Addition of acetone is required to break the emulsion. Hence, its addition is not required when analyzing technical concentrate samples.

ANNEX B
(Foreword)

COMMITTEE COMPOSITION

Pesticides Sectional Committee, FAD 01

<i>Organization</i>	<i>Representative(s)</i>
Directorate of Plant Protection Quarantine and Storage, Faridabad	DR RAVI PRAKASH (Chairperson)
All India Biotech Association, New Delhi	SHRI SAURABH SINGHAL SHRI SHAH JI DHAR (<i>Alternate</i>)
Central Insecticide Board and Registration Committee, Faridabad	SECRETARY DR VANDANA SETH (<i>Alternate</i>)
Central Insecticide Laboratory, Faridabad	DR ARCHANA SINHA SHRI SUBHASH CHAUDHARY (<i>Alternate</i>)
Consumer Guidance Society of India, Mumbai	SHRI SITARAM DIXIT DR M. S. KAMATH (<i>Alternate</i>)
Crop Care Federation of India, New Delhi	DR J. C. MAJUMDAR
Crop Life India, New Delhi	SHRI ASITAVA SEN MS NIRUPAMA SHARMA (<i>Alternate</i>)
CSIR -Indian Institute of Toxicology Research, Lucknow	DIRECTOR DR SHEELENDRA P. SINGH
Food Safety and Standards Authority of India, New Delhi	ADVISOR (<i>Standards</i>)
FMC India Pvt. Limited, Bengaluru	SHRI CHIRAG PATEL
IDMA Laboratories Limited, Chandigarh	DR INDRA RAI
Indian Agricultural Research Institute, New Delhi	DIRECTOR
Indian Institute of Packaging, Mumbai	DR TANWEER ALAM
Indian Pest Control Association, New Delhi	SHRI UDAYAN GHOSH
Institute of Pesticide Formulation Technology, Gurgaon	DR M. VAIRAMANI
Ministry of Agriculture, Department of Agriculture, Chennai	JOINT DIRECTOR OF AGRICULTURE (<i>RES</i>) DEPUTY DIRECTOR LAB (<i>Alternate</i>)
National Centre for Integrated Pest Management, New Delhi	DR SUMITRA ARORA
National Institute of Plant Health Management, Hyderabad	DR MAHESH SAINI MS T. SRIDEVI (<i>Alternate</i>)
Pesticide Manufactures and Formulators Association of India (PMFAI), Mumbai	DR ARCHANA SRIVASTAVA DR UDAY KUMAR (<i>Alternate</i>)
Regional Pesticides Testing Laboratory, Chandigarh	SHRI V. VASU

<i>Organization</i>	<i>Representative(s)</i>
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In Personal Capacity (263, Sector 28, Faridabad – 121008)	MR VIPIN SAINI
BIS Directorate General	SHRIMATI SUNEETI TOTEJA, SCIENTIST 'E'/ DIRECTOR AND HEAD (FOOD AND AGRICULTURE DEPARTMENT) [REPRESENTING DIRECTOR GENERAL(<i>Ex-officio</i>)]

Member Secretary
 SHRI KULDEEP MITTAL
 SCIENTIST 'B'/ASSISTANT DIRECTOR
 (FOOD AND AGRICULTURE DEPARTMENT), BIS

Bureau of Indian Standards

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the website- www.bis.gov.in or www.standardsbis.

This Indian Standard has been developed from Doc No.: FAD 01 (19370).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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